

- RLY1-8 12V DC, 300uA coil, 3 AMP CONTACTS  
 Q1-8 2N3704 RED LED  
 R1-8 68R  
 D1-8 1N4007  
 C1-8 100uF 0.25V  
 R9-1 10K  
 Q1-8 2N3704  
 TB1-4 4 pos. Terminal Blocks (e.g. type 423-762)

Note 1: BUS LINES A33, A34 are joined on the edge connector and need cutting apart for use on the 15BUS.

GREENBANK ELECTRONICS  
 OP-3 ASSEMBLY DRAWING

[Handwritten signature/initials]

FOR 8-BIT I/O PORT ADDRESS

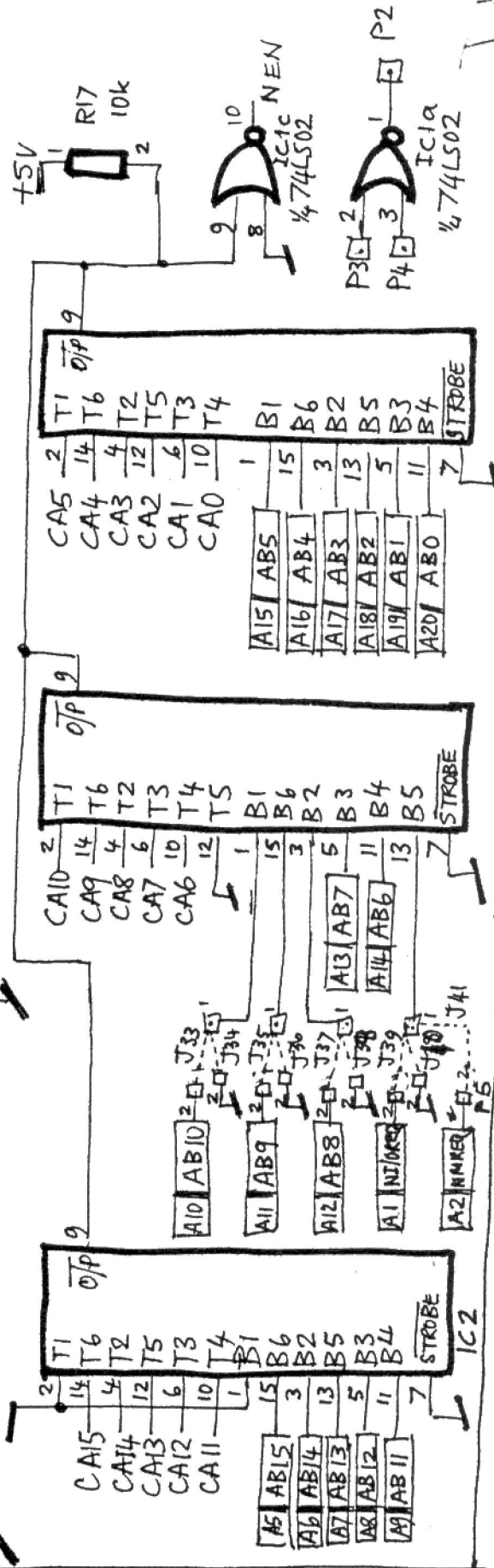
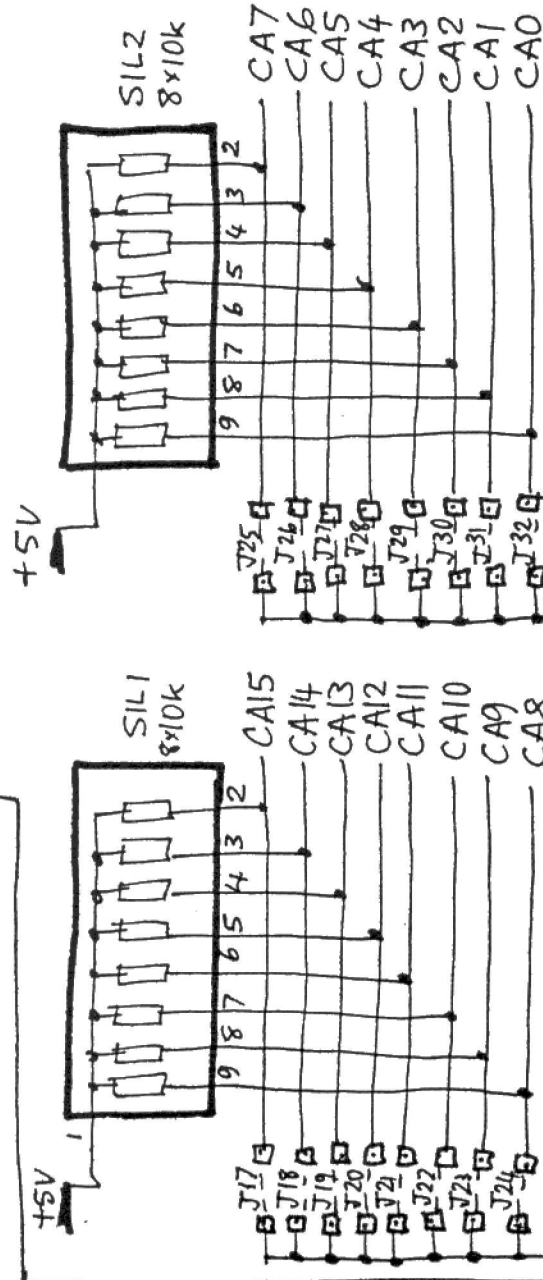
FIT J22, 23, 24, 34, 36, 38, 39.  
OMIT IC2. USE J25-32 TO SET  
THE COMPARTOR ADDRESS (CA7-0) TO  
THE DESIRED 8-BIT PORT ADDRESS

FOR 16-BIT I/O PORT ADDRESS

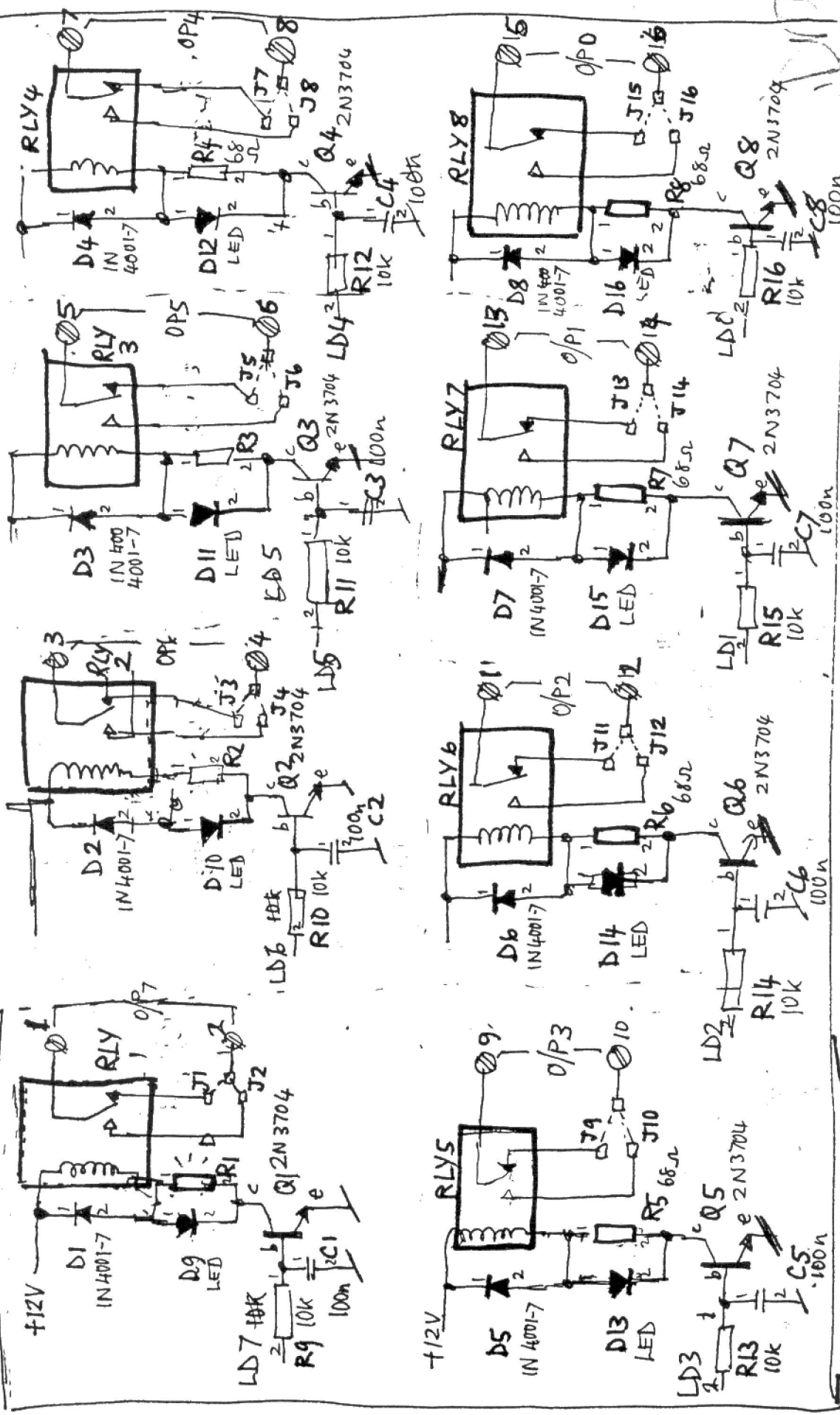
FIT J33, 35, 37, 39. USE J17-32  
TO SET THE COMPARTOR ADDRESS  
(CA15-CA0) TO THE DESIRED 16-BIT  
PORT ADDRESS

FOR 16-BIT MEMORY ADDRESS

AS FOR 16-BIT I/O PORT ADDRESS  
BUT FIT LINK J41 INSTEAD OF J39

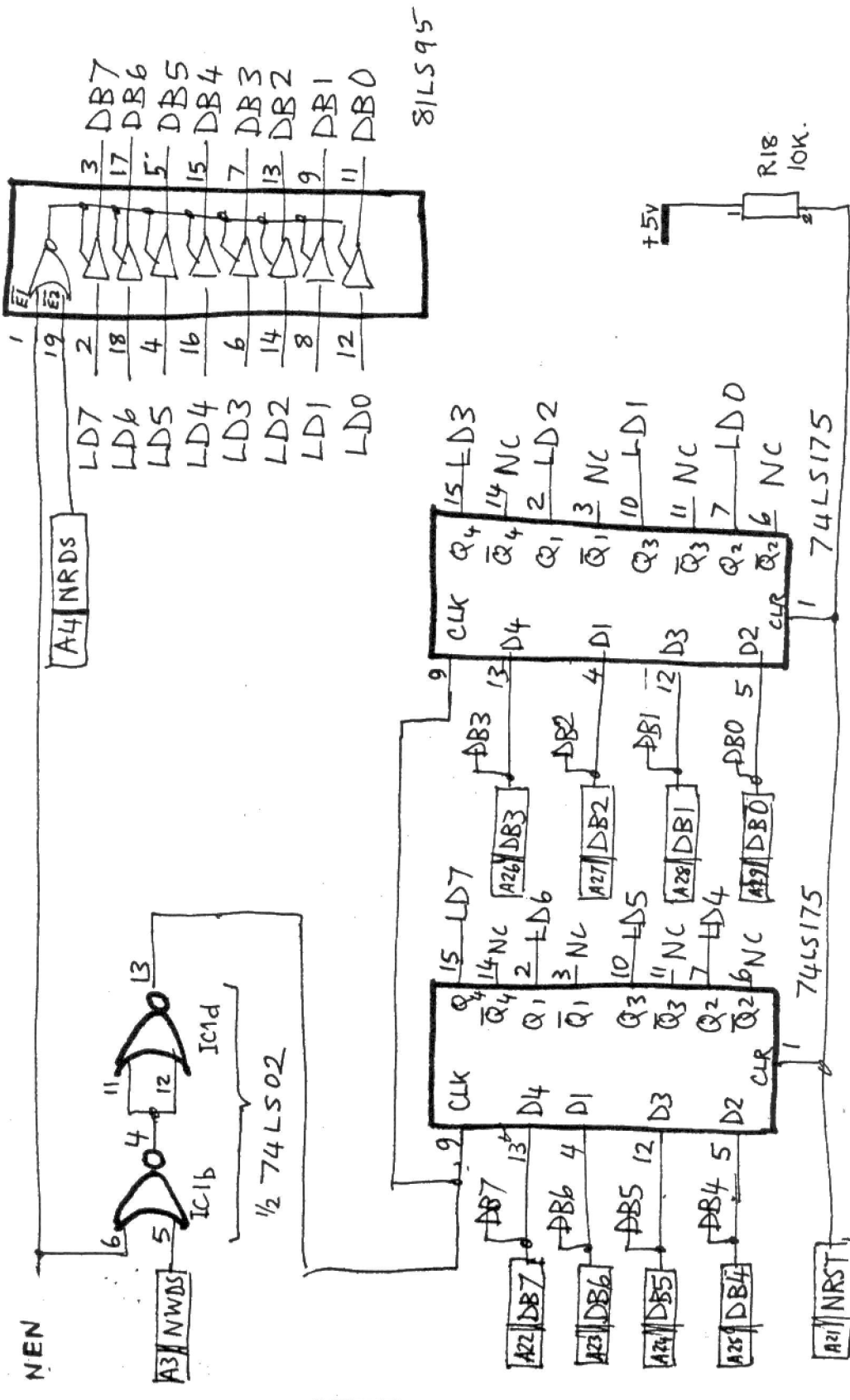


OP-3 - CIRCUIT  
DIAGRAM ADDRESS  
SELECTION



DP-3 BOARD CIRCUIT  
DIAGRAM, RELAYS  
AND DRIVERS.

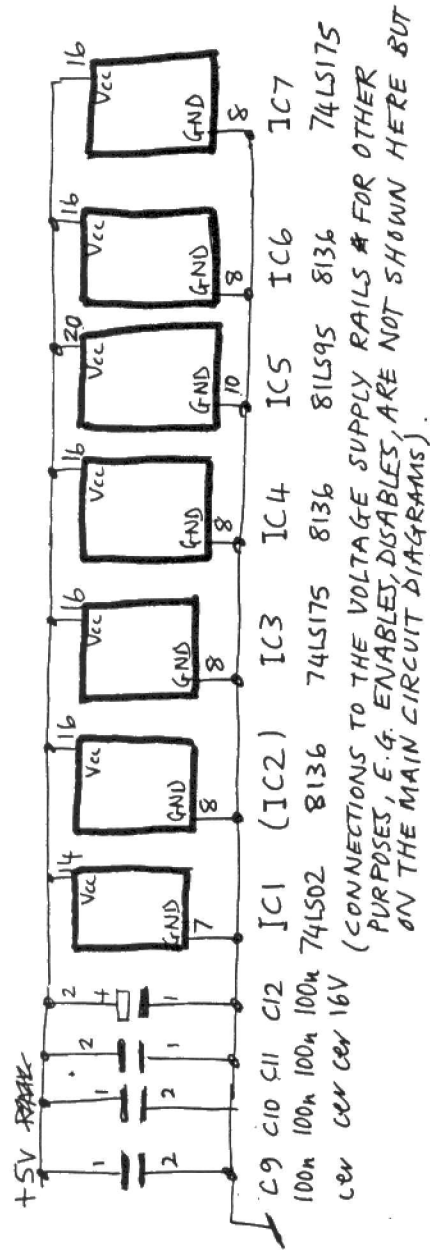
IF LED IS NOT FITTED  
THEN 68R ~~CAN BE~~ (R-18)  
SHOULD BE REDUCED  
TO 33R



Diagram

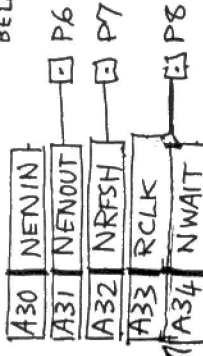
OP-3 CIRCUIT  
DIAGRAM DATA LATCHED  
AND BUFFERS

## DECOUPLING CAPACITORS



### KEY TO SYMBOLS USED

A SIDE  
EDGE CONNECTIONS UNUS'D BY  
THIS BOARD (SEE ALSO 'POWER SUPPLIES')  
BELOW



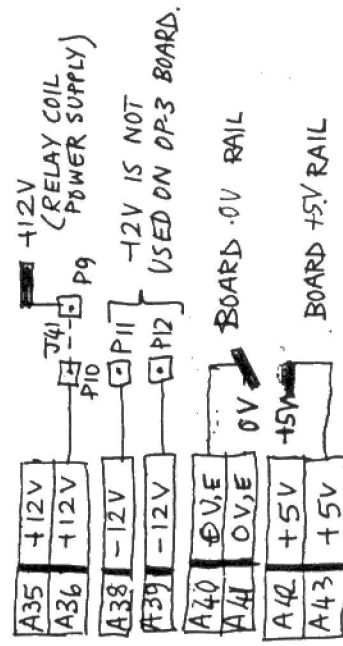
-IMPORTANT! ALTHOUGH A33 AND A34 ARE UNUSED BY THIS BOARD THEY ARE PHYSICALLY JOINED ON THE BOARD EDGE-PLUG AND MUST BE SEPARATED, USING E.G. A SCALPEL, IF THE DP-3 BOARD IS TO BE USED ON JSBUS.

THE WHOLE OF THE 'B' SIDE IS UNUSED  
AND THERE ARE NO 0.1" GOLD 'FINGERS'  
PROVIDED.

POLARISING SLOT (IF USED)  
POSITIONS A37, B37

## POWER SUPPLIES

☐ P1 } NOT CONNECTION  
☐ P13 } POINTS



OP-3 CIRCUIT DIAGRAM  
POWER SUPPLIES ETC.

## PARTS LIST.

OP3

## RESISTORS

R1	68 $\Omega$	R10	10k
R2	68 $\Omega$	R11	10k
R3	68 $\Omega$	R12	10k
R4	68 $\Omega$	R13	10k
R5	68 $\Omega$	R14	10k
R6	68 $\Omega$	R15	10k
R7	68 $\Omega$	R16	10k
R8	68 $\Omega$	SIL1	8x10k
R9	10k	SIL2	8x10k

68 $\Omega$  R1 to R8  
10k R9 to R16  
8x10k SIL1, SIL2

## CAPACITORS

C1	100nF	C7	100nF
C2	100nF	C8	100nF
C3	100nF	C9	100nF
C4	100nF	C10	100nF
C5	100nF	C11	100nF
C6	100nF	C12	100nF

400 nF  $\frac{1}{2}$  cer. C1 to C11  
100  $\mu$ F  $\frac{1}{2}$  elec. C12

## DIODES

D1	IN4001-7	D9	0.2 RED LED
D2	IN4001-7	D10	0.2 RED LED
D3	IN4001-7	D11	0.2 RED LED
D4	IN4001-7	D12	0.2 RED LED
D5	IN4001-7	D13	0.2 RED LED
D6	IN4001-7	D14	0.2 RED LED
D7	IN4001-7	D15	0.2 RED LED
D8	IN4001-7	D16	0.2 RED LED

IN4001-7 D1 to D8  
0.2 RED LED D9 to D16

## TRANSISTORS

Q1	2N3704	Q5	2N3704
Q2	2N3704	Q6	2N3704
Q3	2N3704	Q7	2N3704
Q4	2N3704	Q8	2N3704

2N3704 Q1 to Q8

## INTEGRATED CIRCUITS

IC1	74LS02	IC5	81LS95
IC2	8136	IC6	8136
IC3	74LS175	IC7	74LS175
IC4	8136		

74LS02 (14) IC1  
74LS175 (16) IC3, IC7  
81LS95 (20) IC5  
8136 (16) IC2, 4, 6

## RELAYS

RLY 1 to 8, 8 OMRON G2L113PV

## TERMINAL BLOCKS

TB1 to 4 G. 423-762

## SOCKETS

14 pin	1	IC1
16 pin	5	IC2, 3, 4, 6, 7
20 pin	1	IC5